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Q&A With John Gibbons

Clinton's Science Advisor: On the Record With SGR

John H. Gibbons, Assistant to the President for Science and Technology and Director of the Office of Science and Technology Policy, spoke with SGR Editor Greenberg on July 7. Following is the text of the conversation, transcribed and edited by SGR.

SGR. *The money situation for research looks grim.*

Gibbons. We're playing a zero-sum game. It's one thing to talk about deficit reduction. It's another thing to do it, and at the same time have the opportunity to do some new things. So, what we've tried to do is not so much to increase budgets in this area, because that's a fond dream. But what you can do is re-optimize our present resources, and that's what we've constantly been trying to tell the agencies: We want you to do these new things; they are important, but you've got to find the money inside your own operations, either in increases in productivity or in terms of not doing some things you were doing in order to be able to do some new things.

SGR. *This Administration is pushing industrial technology. What evidence is there that you can do anything economically useful in that sector? What's there to show for \$3 billion over 10 years in Small Business Innovation Research [SBIR] awards?*

Gibbons. One thing we have to show for it is that the number of new corporate formations in the last 12 months has been at a record high.

SGR. *Can you credit that to SBIR?*

Gibbons. You can credit it to a renewed optimism about opportunities out there in the market place, given the kind of encouragement of business that we're trying to provide, with technical assistance, training programs, the research and experimentation tax credits, long-term capital gains treatment for small businesses, and a sense of renewed partnership between the government and the private sector, rather than some antagonistic standoff.

SGR. *Most SBIR awards go to organizations that are already in being. The Advanced Technology Program [ATP] at NIST has been around now for around three or four years. Some people say it's money down the drain, that if things are going to happen out there, they will happen anyway.*

Gibbons. You can always say the best thing for the government to do is to do nothing. But that also can be translated that there's no public interest in our national economic development, and I think that's kind of nuts. With SBIR, but particularly with ATP and the TRP [Technology Reinvestment Project, which shifts R&D funds from national-security programs to so-called dual-use projects], we've tried to design into every one of these, first of all, cost-sharing; secondly, clearly defined milestones; and, third, sunsets. It's

a little early to give some general results. But I think laying those conditions on these things is going to give you a lot better chance at creating a quasi-market environment for these kinds of activities. All the participants have to have money on the table, and they must have very well-defined milestones.

SGR. *Does the record show any big winners yet?*

Gibbons. That would be a better question for Gary Denman [Director of the Advanced Research Projects Agency] or Arati Prabhakar [Director of NIST], because that's where most of the money is flowing. I know there are vignettes that have been used, but I don't know whether it's time yet even for a general appraisal.

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In Brief

The Clinton White House periodically seems to remember that agricultural research is a major responsibility of the federal government. Nineteen months after taking office, it's on the brink of filling the top research job in the Department of Agriculture, Assistant Secretary for Science and Education—but is moving slowly. Late in May, the President announced his choice for the post: Jose Amador, Director of the Texas A&M University Research and Extension Center at Weslaco. However, the formal nomination wasn't sent to the Senate until July 21. The Ag Committee hasn't acted yet.

Clinton's first choice for the job, Luis Sequeira, of the University of Wisconsin, withdrew in disgust last fall after the White House announced his selection and then seemed to forget about him [SGR, Nov. 1]. The initial roster of the National Science and Technology Council, announced last Nov. 23, included all major federal R&D agencies—except Ag, later added as an embarrassed afterthought. While at least modest growth has been sought for most other R&D programs, Ag has remained essentially level.

Senator Barbara Mikulski's Appropriations Subcommittee has come across with a whopping increase for the National Science Foundation—half a billion over the current budget, a 17-percent boost, about \$300 million more than the President requested. The NSF chiefs are delighted, but are privately doubtful that the final figure will remain so lofty in negotiations with the House, where the increase was a touch under 3 percent and budget-axers run loose. Underpinning Mikulski's support for the Space Station, the White House eased pressure on her budget by juggling the pace of spending on housing and other big programs funded by the Subcommittee.

... On Space Station and Mrs. Clinton's Talk at NIH

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SGR. Last year I asked Mary Good [Commerce Under Secretary for Technology] if there are any home runs in ATP, which has been around long enough for some results to show up. And she said she'd happily settle for a single or a double at this stage. Billions of dollars have been put into these programs over quite a few years. Where is the payoff?

Gibbons. There are no immediate miracles in this business. You can look in the private sector and multiply those investments by an order of magnitude and ask the same question. I don't think we should necessarily judge the government's programs any stronger than the market judges private-sector programs.

SGR. So, basically, your feeling is it's a bit early to tell whether these programs are going to pay off in the economic terms that were stated to be their purpose.

Gibbons. It's not necessarily too early to tell, but it's going to be very difficult to tell, because there are an enormous number of factors that operate in the outcome of our economy. That's why I feel the number of new corporate starts is one of the pulses we can take on the degree of optimism of the private sector. And that in turn is strongly influenced by the availability of venture capital, the cost of capital, which in turn is at least partially reflecting our control on the deficit. And also the rest of the seed ground that comes out of public policy that does influence whether people invest.

SGR. We've been talking about the applications of science and technology. What about the care and feeding of basic research? A lot of people out there, particularly in the academic sector, are complaining louder than ever.

Gibbons. The President, starting in February '93, when he released that plan *Technology for Economic Growth*, has underscored the importance of fundamental science and its non-linear connectivity to technology and commercialization. And that's been reflected in the budget support of science. But we've said all along that no one should expect to escape this very tough time of getting our deficit down. If we don't do that, then the rest of the things don't matter all that much. In that context, the fact is that the science budget has fared better than almost everything else in the federal budget. And that didn't come by accident.

SGR. The budget watchers notice that they did better under previous Administrations.

Gibbons. And they weren't watching the deficit side of the ledger in that process.

SGR. Let's look at the decisions within the fixed budget. The Space Station is coming out of the hide of NSF, among others.

Gibbons. No, it's coming out of the hide of NASA. We constrained the Station to a less costly business. We expanded it to include Russia, with a lot of benefits direct and indirect from that. We capped it at a maximum annual spending rate, which was a real discipline. We caused NASA

to be reorganized and reformed, in a sense, in order to do this. Therefore, the spread-out benefits of that program—it changed enormously in the past 16-18 months—have persuaded the President and the Vice President and the House that we've turned something around from an impending disaster to a very viable and important multi-purpose set of activities.

SGR. It's going to come out of other NASA programs, as well as the modest growth that was originally written into the budget for NSF, which the House pared back by about half. The Space Station has been saved, but a price is being paid for this.

Gibbons. A price is being paid, but you have to remember what it's coming out of. It's coming out of an Appropriations Subcommittee that simultaneously has the Departments of Housing and Urban Development, Veterans Affairs, NASA, NSF, and a single budget number under which all these things have to fit. And there are very powerful lobbies for veterans and for housing. And the science part has to compete with those, because it comes out of that package. Inescapably, you're dealing with a zero-sum game, and we admit it's tough. But the Station that emerged from the Cold War is now so far behind us, you can't even see it. It is now something that merits this kind of investment. We have to help Russia keep moving in the right direction. We used to spend \$300 billion a year in the defense area. If you count even half of the Station for our relations with Russia, that's only a small fraction of what we used to be spending on defense.

SGR. Mrs. Clinton went out to NIH earlier this year and said that the Republicans are the ones who are holding back the budget for basic biomedical research, that the same people who are against health-care reform are against basic biomedical research [SGR, March 15: "Republican Backers of NIH Enraged by Hillary's Speech"]. In fact, that's not really true.

Gibbons. Except for things such as fetal research.

SGR. Whatever their sins, Congressional Republicans have generally been strong supporters of NIH.

Gibbons. I think members of Congress, in general, have been very strong supporters.

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... Aiming for Peer Review in Government's Labs

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SGR. Where did she get this notion that there's a bipartisan issue in the support of biomedical research, when this has been a politically unified program? The late Silvio Conte [R-Mass.]—

Gibbons. Silvio was a strong supporter. My impression, and I don't follow it perhaps as closely as I should, is that many Republicans have simply been against anything the White House is for. There's been an increasing polarization there that we worry about because, as Leon Panetta [at the time, Director of the Office of Management and Budget, now White House Chief of Staff] points out, we've made progress with bipartisan convergence on things. And, as you near Congressional reelection time and Presidential election times, then perforce, people start diverging. I'm not exactly sure what the First Lady had in mind when she was talking about that, but I do know that we've had a real struggle to keep our support of NIH up to where we'd like to have it. And if you look at the votes on the budget, it's been Republicans lining up against the Democrats on virtually every budget vote we've had.

SGR. The first Clinton budget actually called for a general reduction for NIH—an increase in AIDS research, without the overall budget going up.

Gibbons. Yeah, that was a tough problem, but the year before, they'd also had a big bump [increase], and we have to average these things out a little bit.

SGR. The biomedical community is talking in alarmist terms. Does the Administration, or the President's Science and Technology Advisor, share their perception that biomedical research is facing a fiscal crisis that is actually going to hurt the quality and progress of research?

Gibbons. I think all of us are going to have to learn to live more with pay-as-we-go, instead of borrowing from the future. Of course, one of most rational ways you can defend borrowing money from your kids is if you can invest it in something that is going to pay off for your kids. But my feeling is that, while the research community is not enjoying the kinds of increases it's used to, the big crunch in the biotechnology and biosciences areas has been in the industrial sector in terms of the availability of secondary financing. Now, that's not something the government can do much about, except to provide a policy environment that is conducive to the private sector providing the kind of financing these kind of companies need. And also an environment where you can conduct, for instance, work on advanced genetic engineering, in which the US is way ahead of the rest of the world, in no small measure because the Administration strongly supports responsible moves in these directions.

SGR. You're now in the early stages of working up the '96 budget, and there are some new principles that are supposed to guide the departments and agencies. How is this different from the past? Many of these principles could just as easily have fit into the position statements of previous Administra-

tions.

Gibbons. There's not a lot new under the sun. You're referring to the thing Leon Panetta and I sent out to the agencies back in May, and that's being followed up shortly with some additional guidance on specific priorities at the margins. We have finished our part on the guidance, and it's down in OMB now. We want to make sure OMB agrees with us, because it involves collecting considerably more detailed information about just where our R&D dollars are going now, in categories that can be mapped into Presidential priorities. We hope to get that information out in time by mid-August, early September to be able to affect the budgets as they come in from the agencies.

What's happening with respect to the '96 budget is, we're trying there to more explicitly incorporate such things as, not only merit, but peer review of research, not only in universities but within the federal laboratory systems as well. And that relates to our work with particularly DOE and NASA and DOD, and now to an extent to EPA, on a close examination of the federal labs, where over half the federal R&D money goes. To see if we can better understand the real comparative advantage of doing work in that kind of an institution versus some other ways of spending our money. And we hope that some of those criteria will be showing up in the way we look at the '96 budget.

SGR. The federal labs insist that they've always had peer review.

Gibbons. We're talking about external peer review.

SGR. They say they've got visiting committees and this or that—whatever you think they should have.

Gibbons. They do, to a degree. But we feel in many instances they can do a lot better job at it.

SGR. Would you subject them to mandatory peer review that would really have the power of yes or no on expenditures?

Gibbons. Much of this is being reflected, as it should be, in the agencies' own internal administrative decisions. But the evidence I'm seeing is that they're going to be requiring a lot more explicit external peer review on where money is going to be flowing. In the case of at least one agency, they're talking about a model that sounds to me a lot like what 3M does, namely, they want to hear about proposals from individual researchers within their own laboratories and also will start doing some internal competitive peer reviewing, with awards made for specifically good ideas that are coming up from within the institution. 3M has had a great deal of success in that regard.

SGR. Are you going to close down some of the labs?

Gibbons. The Department of Defense is clearly intending to close some laboratories. I think the main thing is not to say whether they're going to be closed or open, but what's going to happen in terms of optimum use of those resources—the physical resources, the unique capabilities, the people en-

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... Concern Over Technology's Impact on Jobs

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gaged in the activity, like defense conversion, and an optimum way, over time, to transform those resources so they're better aligned with the new world we're in. It is very difficult to rationalize now, for example, two nuclear weapons design activities in a time in which nuclear weapons are moving more and more into the background.

SGR. *Those two labs [Los Alamos and Livermore] are old survivors.*

Gibbons. Just because it's hard, doesn't mean you shouldn't try to do it. But there's an extraordinary set of capabilities in the three labs [the aforementioned, plus Sandia]. And therefore you don't go out there and lock the gates. It means that you encourage each of those places to identify their best comparative advantage in the new kind of world that we're in, and move their resources in that direction.

SGR. *Do you think Los Alamos or Livermore will be closed down? Or will they simply be reoriented to other work?*

Gibbons. I'm guessing, because [former Motorola CEO] Bob Galvin's committee's [advising the DOE Secretary on the future of the Department's labs] work won't be finished until next spring. But my guess is that both of those laboratories are going to be very active research and development facilities in the future, but that they aren't both going to be primarily driven by nuclear weapons funding. One suggestion was that at least one of the labs should be a national asset, not just a Department of Energy and a nuclear weapons asset. Should it be a multiplicity of agency investments going on there? I don't know yet, but I think we're going to try to resolve those questions in the coming 12 months.

SGR. *As the economy picks up, there doesn't seem to be an increase in job opportunities for people with advanced scientific and engineering degrees.*

Gibbons. It takes longer to find a job now as a fresh PhD. But try it if you don't have a high school degree. The noose is tightening in the employment market across the board, but unemployment rates are still extremely small for PhDs.

SGR. *Mathematicians report that six months after graduation with the PhD, 12.5 percent are unemployed.*

Gibbons. You go to France, and the national unemployment rate is 12.5 percent. [National Academy of Engineering President] Bob White has been very thoughtfully addressing the unemployment issue [SGR, October 15: "Engineering Academy Hears Gloomy Views on Economy"]. And I guess it comes down to this, which I think more of us need to give more careful thought to: We know that technology and science are the mother source of new ways to do things and to create new kinds of goods and services, new ways to satisfy the seemingly infinite human aspiration, and therefore expanding markets of opportunity. At the same time, technology enables you to do more things with fewer people. The dilemma is, are you net cutting out jobs, or are you net

creating jobs? I think it's a little bit of both, and it also tends to upgrade the level of capability required in the marketplace. And that means you're moving in the direction of so-called good jobs. But we don't understand those dynamics as well as we should. We need to use a model that at least looks at alternatives to this indefinite exponentiation model that says markets will outgrow productivity gains. Because if markets don't outgrow productivity gains, then you have net decreases in employment.

SGR. *Is somebody looking at that for you?*

Gibbons. We are trying to encourage it. I don't have any money in OSTP to look at this, but Bob White and I have been talking about it, and what we're trying to do is encourage the scholarly community to give more serious attention to the question of the long-term impacts between technology development, on the one hand, and the nature of employment and the way people spend their time.

SGR. *That was a fairly despairing speech that White gave. The title was "What Lies at the End of the Technological Rainbow?" His answer was unemployment.*

Gibbons. I think he posed it as a teaser. I applaud it. These are tough questions. But it is we who are in the science and technology community who ought to be the first, not the last, to ask about the social ramifications of the work we do. We have a lot of good news out there. It's not that we're the bad guys. But if we don't think about pluses and minuses of the impacts of where we're headed, then we're in trouble.

SGR. *When the President's Committee of Advisors on Science and Technology (PCAST) comes into being, what will it do?*

Gibbons. We're going to charge the Committee with helping us on some things we already recognize. For instance, how well are we doing in public-private partnerships in all these endeavors? We will probably charge them with giving us some help on some, I would call it socio-technical issues, whether it be biomedical ethics or that sort of thing. But we also want to give them the opportunity not only to respond to questions we have, but to tell us what they're thinking. That's why we wanted a rich diversity of backgrounds and perspectives in the group.

SGR. *Is this going to be a discussion group, or are you possibly going back to the long-ago style of sub-groups issuing momentous reports?*

Gibbons. I think there probably will be some sub-groups, but I don't think anyone is interested in a bunch of momentous reports, because in my telephone interviews with a number of the PCAST members from the Bush Administration, they felt, I think, that was not really a very productive role for them to be involved in. They want to give advice more than write reports. And I think that's probably the direction we'll be headed.

SGR. *The Administration put up a great fight for the Space Station, but for the Super Collider, it didn't do much*
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Sci/Tech Council Holds First Meeting, Lists Goals

The major creation of the Clinton Administration in sci/tech organization, the National Science and Technology Council (NSTC), held its first meeting June 29, with virtually all the top officers of government in attendance, starting with the President, and on through Cabinet secretaries and agency heads with major R&D activities, plus senior White House staff.

Held in private, the meeting heard pep talks about the importance of research. For public consumption, it produced one document—a list of the Council's "1994 initiatives." Since ambitious rosters come easy in Washington, and often are followed by sparse results, the heroic goals should not be equated, at least yet, with accomplishment. Each initiative is assigned to a multi-agency group of selected members. Following are the titles and SGR's assessment of purpose:

Federal R&D Priorities. Aims to promote government-wide integration of R&D activities, a 40-year-long goal that occasionally yields a small success, which is enough to reinspire the pursuit.

Interagency Laboratory Review. Looking at the lab systems of the government's big three in research—Energy, NASA, and Defense—all ripe for the ax, though NSTC does not say so.

Science in the National Interest. Writing a paean to basic research, to quiet the clamor from that sector.

Environmental Technology Strategy. Dedicated to developing federal environmental programs to fire up the private sector, this is Gore's baby and therefore the agencies pay attention—but the effort lacks money.

Environmental and Natural Resources R&D Strategy. Also in Gore's domain, this one aims to make all federal agencies environmentally virtuous.

Gibbons (Continued from Page 4)
more than say it would be a nice thing to have.

Gibbons. That thing was headed over the waterfall and it was exacerbated by the mania for cutting anything you could find. All 50 states supported it until it went to Texas, and then only one state supported it. We did try to save it, but it was too little, too late. Don't forget, though, that in our particle-physics budget, only half of it was SSC, and the other half is still there, and we supported it strongly. And we upgraded the Fermilab injector. We've got the B-factory going in at Stanford. So, it's not as though we're out of business. We have a decade even with our own machines.

SGR. Those ingrates in high-energy physics say we're out of business.

Gibbons. Oh, I know, I know. You can look at their budget and compare it to our whole research and development in renewable energy, and particle physics is hands-down the winner.

SGR. Eighteen months into the job. What's the most important thing that's happened here?

Gibbons. From my perspective, the most critical thing is

Converged Polar Orbiting Environmental Satellite. Toward "single national program for environmental surveillance," combining the resources of the Defense Department and the Commerce Department's Environmental Satellite System.

Landsat Remote Sensing Strategy. To "assure the continuity of land remote sensed data" provided by Landsat satellites 4 and 5.

Partnership for a New Generation of Clean Vehicles. Involving more hoopla than engineering, a joint federal effort with the Big 3 to develop cleaner, more efficient vehicles.

Space Station. Barely off life support after another miraculous save on Capitol Hill, the revamped orbital turkey is billed as "the most significant international science program ever undertaken"—though when scientists scoff at the Station as scientifically insignificant, the promoters sternly respond that the project is primarily for developing engineering skills in space.

National Space Transportation Policy. Looking to provide grist for a Presidential directive on who's in charge of what in developing a new generation of launchers and modernizing the current fleet.

High Performance Computing and Communications. As if that morass weren't sufficient as is, the NSTC assumes responsibility for "Grand Challenges," listed as "weather forecasting, building safer and more efficient aircraft, designing life-saving drugs, and understanding how galaxies are formed."

National Earthquake Disaster Reduction Program. This one "seeks to reinvent the national earthquake strategy," by "better leveraging modest resources" now available.

the interest expressed by the President and Vice President that science and technology are a rare source of options to fulfill national aspirations. And that's reflected in their willingness to basically revolute the role of science and technology in the Administration's core at the White House.

SGR. Revolute?

Gibbons. To transform and elevate. And it appears most directly in the elevation of science and technology through the National Science and Technology Council [NSTC], which the President created. And it has enabled us to do a bunch of things that, in prior times, simply didn't fly.

SGR. Like what?

Gibbons. One of the most clear examples has been the ability, after something like eight or nine previous failures, to get the civilian and military agencies to merge the whole weather satellite system, hopefully with Europe engaged as well. The outcome is a fully integrated civil-military system that knocks the hell out of the redundancy problem, and saves a billion dollars along the way. This is an example of where the willingness of the White House to enter in enabled us to overcome what had been failure after failure.

In Quotes: Careers and Ethics Under Pressure at NIH

From "American Science in Crisis: The Need to Revise the NIH Funding Policy," by Jose M. Musacchio, Department of Pharmacology, New York University Medical Center, in the July FASEB Journal, published by the Federation of American Societies for Experimental Biology.

In all branches of science and art, most innovations are brought about by the younger generation. The present system effectively blocks their efforts to get established and, what is worse, compels researchers and postdocs to defect to private practice or to industry. Moreover, there has been a decisive drop in the interest of US college students and physicians in choosing a scientific career and applying for scientific training.

Additional problems are the rush to publish preliminary results, the publication of similar results in multiple papers, and the unfortunate increase in scientific fraud that has been attributed to the ruthless competition for funds.

Grant writing has become an essential skill for survival, almost a new art form. Grantsmanship workshops for new investigators are offered by several societies, including the Society for Neuroscience. Guides to successful grantwriting have proliferated, but unfortunately, the advice provided by some does not always promote ethical behavior.

Applicants are told that "the end justifies the means," and are advised to inflate their budgets as insurance against cuts across-the-board.

This Machiavellian tactic further undermines the morale of everyone involved. When researchers feel that funding policy is unfair, many get discouraged, but few seem to adapt to the situation by reciprocating in kind. Ethical behavior is very fragile: the perception of an unfair situation seems to

Job Changes & Appointments

Zach W. Hall, Chairman of the UCSF Department of Physiology and Head of the Biomedical Sciences Graduate Program, has been appointed Director of the National Institute of Neurological Disorders and Stroke at the National Institutes of Health. He succeeds **Murray Goldstein**, who left in 1992 for the United Cerebral Palsy Research and Education Foundation.

Also at NIH: **Joseph Jacobs**, Director of the Office of Alternative Medicine since its founding in 1992, plans to leave September 1 for an academic post. The office was forced on NIH by Congress, and has been pretty much an outcast on the Bethesda campus, where it is regarded as a kook shop. The NIH chiefs have it safely buried in the Science Policy Studies Center, which comes under the Office of Science Policy and Technology Transfer.

Raymond E. Bye Jr., Director of the Office of Legislative and Public Affairs at the National Science Foundation since 1983, plans to leave that post this fall for an academic position, still under discussion. **Joel Widder**, Director of

SGR Summer Schedule

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give license to relax the standards and to adopt unethical strategies.

The tactics used by some scientists are not even acceptable as business practices, and certainly they should not have a place in academia. The misconduct of some investigators further contributes to lower morale of all those involved. Unfortunately, their example may change forever the ethical behavior of the new generation of scientists.

APA Picks New President

That acrimonious Presidential ballot at the American Psychological Association has ended in triumph for the inside crowd, with the defeat of an insurgent candidate from academe, and the election of the first non-PhD to the top post, Dorothy Cantor, a private-practice shrink in New Jersey [SGR, June 1: "Venomous Accusations Mark Election at Psychology Association"].

Cantor, who holds a Doctorate of Science in Psychology, a degree designed for practitioners, easily triumphed in the usual field of five, which included Lewis P. Lipsitt, a Brown University Professor, who came in second in the 1993 APA election. Normally, number two wins the next time around. But APA staff, vaporously accusing Lipsitt of "harassment," effectively used the Association's newspaper for a one-sided barrage against his candidacy. At the rival, science-based American Psychological Society, the APA election is viewed as a plus—worth a 1000 new members, SGR was told.

Legislative Affairs, will succeed Bye on an acting basis.

Anne Petersen, Vice President at the University of Minnesota, named by the White House in April for the number two spot at NSF, was confirmed by the Senate on July 1.

Thomas B. Deen plans to retire this summer after 14 years as Executive Director of the Transportation Research Board (TRB), one of the more robust enterprises within the National Academy of Sciences complex. A Board announcement says that during his tenure, TRB revenues rose from \$9 million to \$35 million, and attendance at the annual meeting from 4000 to 7000. Deen will be succeeded by **Robert E. Skinner Jr.**, TRB Director of Studies and Information Services.

Alastair Allcock, Science and Technology Counselor at the British Embassy in Washington from 1987-92, has retired from the Civil Service and set up a consulting practice focused on US-UK science and technology relations, particularly in aviation and civil space research: Allcock Consulting, 12 St. Lawrence Dr., Pinner, Middlesex HA5 2RU, UK; tel. 081-866-2110.

In Print

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Competitiveness Index 1994 (32 pp., \$10, plus \$1.50 for shipping; prepayment required), from the Council on Competitiveness, Washington outpost of high-tech industry and assorted hangers-on in academe and the think-tank trade, a reiteration of the government-activism theme that made sense during the complacent, do-nothing Reagan-Bush Administrations. But with the hyper-active Clinton crowd even more devout than the Council, it's difficult to see why this outfit remains in business. The report says the US is doing better in the Council's basic indices of competitiveness—standard of living, trade, productivity, and investment—but urges even greater efforts, in research as in other areas, to keep ahead of foreign rivals.

Order from: Council on Competitiveness, 900 17th St. NW, Suite 1050, Washington, DC 20006; tel. 202/785-3990; fax 202/785-3998.

Technology for a Sustainable Future: A Framework for Action (GPO Stock No. 061-000-00815-2; 154 pp., \$14), a major environmental statement, bearing the signatures of the President and Vice President, this one got lost in the Washington hub-bub when it was released last month. Focused on monitoring and prevention as the next big steps in promoting environmental quality, the report covers a broad spectrum of activities, including regulatory policy, technology development, education etc.

Order from: New Orders, Superintendent of Documents, USGPO, PO Box 371954, Pittsburgh, Pa. 15250-7954; tel. 202/783-3238; fax 202/512-2250.

Genetic Testing and Preventive Medicine: A New Approach to Health Care (34 pp., no charge), from SmithKline Beecham Clinical Laboratories, "A Backgrounder for Journalists," gently tilted toward assuaging concerns about economic misuse of genetic data, non-treatable diagnoses, and over-promising of therapeutic wonders. Upon inquiry by SGR, a SmithKline official said a limited number of copies would be provided to readers sending requests on institutional letterhead.

Order from: Ms. Tobey Gordon Dichter, Vice President and Director, SmithKline Beecham Clinical Laboratories, Communications and Public Affairs, 1201 South Collegeville Rd., Collegeville, Pa. 19426; fax 610/983-2028.

Space Station: Impact of the Expanded Russian Role on Funding and Research (GAO/NSIAD-94-220; 14 pp., no charge), from the General Accounting Office (GAO), a dash of accounting reality on NASA's characteristically reckless claims that it will reap big financial savings and research benefits from Russian participation in the Space Station, now touted by the Clinton Administration as a research and foreign-policy venture. "When all space station related elements are considered," the GAO asserts, "current estimates indicate that much of the savings NASA attributes to expanded Russian participation will not be achieved." The research dividends are also open to doubt, according to the

GAO. No matter. With the emphasis on the jobs it finances, variously estimated at up to 40,000, the Space Station easily made it through the House last month, and smooth Senate approval appears likely.

But not all mega-project hustles succeed, as is evident from another GAO report, **Federal Research: Additional Funds for Terminating the Super Collider Are Not Justified** (GAO/RCED-94-153; 11 pp., no charge). With \$735 million on hand for Super Collider close-down costs, which it estimated last March at \$568 million, the Department of Energy naturally told Congress that it needs more money—another \$180 million to terminate the ill-fated project.

In the old days, when a magic spell shielded the SSC from fiscal realism, a blank check would have been forthcoming. But the poor old Collider has been relegated to the junk heap. The GAO said that it saw no need for additional funds. And Congress followed that advice.

Also from the GAO (without charge): **Electromagnetic Fields: Federal Efforts to Determine Health Effects Are Behind Schedule** (GAO/RCED-94-115; 54 pp.), says the Department of Energy and other agencies lag in the research schedule mandated by the Energy Policy Act of 1992.

Environmental Issues in Central and Eastern Europe: US Efforts to Resolve Institutional and Financial Problems (GAO/RCED-94-41; 76 pp.), says that after a slow start marked by lack of coordination, the US Agency for International Development and the Environmental Protection Agency are making progress in providing assistance for environmental programs in the former Soviet bloc countries.

Energy and Science Reports and Testimony: 1993 (GAO/RCED-94-176W; 47 pp.), annual index of the General Accounting Office's output in these fields, all still available.

Order from: USGAO, PO Box 6015, Gaithersburg, Md. 20884-6015; tel. 202/512-6000; fax 301/258-4066.

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Official reports and other publications of special interest to the research community

(Copies of publications listed here are available from the indicated sources—not from SGR)

The Funding of Young Investigators in the Biological and Biomedical Sciences (117 pp., \$24, plus \$4 for shipping), from a committee at the National Academy of Sciences, which says that late in the preparation of this report, it encountered some unexpected, disturbing data—a steep decline, over 1985-93, in the number of scientists age 36 and under applying for NIH grants. In 1985, the youngsters submitted 3040 applications, of which 1002 were funded, for a success rate of 33 percent. In 1993, the numbers fell to 1389 applications and 302 awards, a 21 percent success rate. The decline persists even when special startup programs for young investigators are added to the totals. Expressing puzzlement and concern over these findings, Academy President Bruce Alberts says in a prefatory note that the Academy is organizing a followup study to examine, among other things, whether young scientists “are finding other means of research support or are taking jobs in environments where they need not apply for support from the traditional sources.” Reflecting the late discovery of the numbers, the report focuses mainly on research funding patterns in federal agencies, industry, and private foundations. Among the recommendations: a separate review track for the beginners.

Shirley Tilghman, Professor of Life Sciences, Princeton University, and Torsten Wiesel, President, Rockefeller University, co-chaired the committee that wrote the report, commissioned in 1991 during the reign of NIH Director Bernadine Healy. Attributing a downturn in young applicants to fierce competition and static budgets, Healy told SGR at the time that she was reminded of the saying “No one goes to that restaurant anymore, because it’s too crowded.”

Also from the Academy: **Fetal Research and Applications: A Conference Summary** (105 pp., plus \$4 for shipping), drawn from a meeting in June 1993 by the Institute of Medicine (IOM), health-policy arm of the Academy. Topics covered included grafting of fetal brain cells in Parkinson’s therapy, *in vitro* fertilization, and *in utero* treatment of fetuses. Controversy over fetal research dropped off the public stage in 1993, when the Clinton Administration terminated a Reagan-era ban on federal funding, which is now provided by NIH. The IOM conference was chaired by Uta Francke, Professor of Genetics and Pediatrics, Stanford University Medical Center.

Order from: National Academy Press, 2101 Constitution Ave. NW, Washington, DC 20418; tel. 1-800/624-6242 or 202/334-3313.

Electronic Enterprise: Looking to the Future (GPO Stock No. 052-003-01375-4; 176 pp., \$12), from the Congressional Office of Technology Assessment (OTA), says industry will be the main performer in the development of a

national information infrastructure, but urges an attentive and forceful role for the federal government to assure equity in reaping the wonders of the new electronic age. Cited as examples of questionable behavior are travel reservations systems tilted to favor the sponsoring airlines, and multiple listing systems limited to select groups of real-estate agents. The report notes that the high costs of entry into electronic markets may dampen competition. The advisory panel for the report was chaired by Daniel Bell, Scholar-in-Residence, American Academy of Arts and Sciences. D. Linda Garcia, of the OTA staff, was Project Director.

Also from OTA: **Defensive Medicine and Medical Malpractice** (GPO Stock No. 052-003-01377-1; 182 pp., \$12), says little is reliably known about defensive medicine—defined as diagnostic procedures primarily motivated by fear of law suits. But, says OTA, its role in health-care inflation appears to be greatly exaggerated. “Overall,” the report states, “a small percentage of diagnostic procedures—certainly less than 8 percent—is likely to be caused primarily by conscious concern about malpractice liability.” OTA argues that “Most defensive medicine is not of zero benefit,” and observes that “Physicians are very conscious of the risk of being sued and tend to overestimate that risk.” R. Randall Bovbjerg, of the Urban Institute, chaired the advisory panel for the report. Judith L. Wagner was Project Director.

Order from: New Orders, Superintendent of Documents, PO Box 371954, Pittsburgh, Pa. 15250-7954; tel. 202/783-3238; fax 202/512-2250. Add 25 percent to the price for foreign orders.

How Health Care Reform Affects Pharmaceutical Research and Development (65 pp., no charge), from the Congressional Budget Office (CBO), cautiously concludes that universal coverage and mandated price restraints on drugs for patients over 65 would basically balance out, and health-care reform “would affect average profits from drug development only slightly.” But the CBO also observes that cost controls in the senior market might steer drug firms toward seeking products for younger customers. In any case, the Clinton health plan has crashed and the chances for various alternatives are unclear. The report was written by Anna Cook and Philip Webre, CBO staff members.

Order from: Congressional Budget Office, Publications, 2d and D Sts. SW, Washington, DC 20515; tel. 202/226-2809; fax 202/226-2714.

Science and Engineering Degrees by Race/Ethnicity of Recipients: 1977-91 (NSF 94-306; 126 pp., no charge), from the National Science Foundation, over 100 tables and charts reporting degrees at bachelor’s and master’s levels in the natural and social sciences, math and engineering to all US citizens and permanent residents, subdivided among white, non-Hispanics; Asians; black, non-Hispanics; Hispanics; and American Indians or Alaskan natives. Degrees are also reported for non-resident aliens and those of “unknown race/ethnicity.”

Order from: National Science Foundation, Division of Science Resources Studies, Arlington, Va. 22230; tel. 703/306-1780; fax 703/644-4278.

(Continued on Page 7)

